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THE STOICS ON WORLD-CONFLAGRATION AND EVERLASTING RECURRENCE

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In his book *On providence* Chrysippus, the most learned and rigorous of Stoic philosophers, discussed the recurrence of the world. 'Since this is so', he went on, 'it is evidently not impossible that we too, after our death, will return to the shape we now are, when certain periods of time have elapsed'.[1] The less cautious reporters of orthodox Stoic doctrine retail this 'possibility' as a firm tenet of the school. Here is the picturesque account in Nemesius of Emesa, a bishop writing in the fourth or fifth centuries of our era: 'Again there will be Socrates and Plato and each one of mankind with the same friends and fellow-citizens. They will suffer the same things, and they will encounter the same things, and put their hand to the same things, and every city and village and piece of land return in the same way. The periodic return of everything occurs not once but many times; or rather, the same things return infinitely and without end. The gods who are not subject to destruction, from their knowledge of this single period, know from it everything that is going to be in the next periods.[2] There will be nothing strange in comparison with what occurred previously, but everything will be just the same and no different down to the smallest details'.[3]

This everlasting renewal of the world we now inhabit is always preceded by *ekpyrosis*, a conflagration so mighty that nothing escapes its effects.[4] An infinite cycle of conflagrations terminates the existence of the infinitely recurrent worlds. So it goes on, and has always gone on, and will always go on, world and conflagration without end. Some later Stoics had their doubts, or gave up the doctrine altogether in favour of the existing world's indestructibility.[5] Even Chrysippus, in the passage with which we started, is tentative about our own everlasting recurrence. Can that master of dialectic have seriously indulged in speculations, not to say firm doctrines, so bizarre, so incrusted with mythology, so apparently pointless or ridiculous either as science or as protreptic for the rationally based moral life? While much progress has recently been made in clarifying the historical and dialectical context of the conflagration and everlasting recurrence, further defence of the Stoics on these issues must take account of many negative votes by current historians of philosophy.[6] Lapidge isolates three reasons for the conflagration and finds them all 'unconvincing'.[7] Sandbach, speaking of both doctrines, says that the arguments in their favour 'were not cogent'.[8] Barnes, finding a lack of explicit justification for the everlasting recurrence, offers the Stoics a series of logical considerations they might have used, and then turns the tables by claiming

that their theories of time make it impossible for Chrysippus to live more than once.[9]

Let us agree, by all means, that the everlasting recurrence of this world and ourselves is an affront to commonsense views of time and change and identity. The Stoics can justly be charged with talking nonsense if their thesis compounds unreasonableness with hopeless reasoning. They should, none the less, be permitted to state their case, if they have one, before our prejudices of what is plausible take over. We should also remember that physicists and philosophers, within the last century, have defended analogous theories, and that cyclical or closed time is a lively talking-point today.[10] Above all, we need to interpret any Stoic thesis about the physical world within parameters set by the problems and possible explanations of ancient science. With these provisos, I propose to show that these aspects of Stoic cosmology are less foolish than they are currently judged to be. More specifically, I will argue that the everlasting recurrence of the world, together with the exact replication of ourselves, is an inevitable consequence of mainstream Stoic thinking on causation, time, physical process and theology. So far from being baldly assumed, or defectively argued, the world-conflagration and everlasting recurrence appear to be over-determined by a convergence of considerations from Stoic philosophy. Nor is it impossible, I shall suggest at the end, that Chrysippus will live and die again.

Even if I am right in all this, however, the overall purport of such doctrines clamours for some explanation. Did Stoic philosophers regard everlasting recurrence as a feature of the world to be viewed with optimism, resigned acceptance or sheer indifference? Has it any psychological or ethical significance in Stoicism which might be usefully compared with Nietzsche's similar thought?[11] Should we perhaps regard everlasting recurrence as a doctrine which Chrysippus, though obliged to accept for a plethora of reasons, would have been happier to do without? These seem to be new questions, which deserve some tentative answers. We shall not have time to pursue them far, since so much requires clarification on the dialectical context of the conflagration and everlasting recurrence. But it may be possible to sketch some lines of enquiry, which would show why the apparent pointlessness and certain monotony of our living, as we do, time and again fits a Stoic conception of the moral life.

The dialectical context of Stoic cosmology

Stoic cosmology offers itself as a rival to two powerful alternatives, Aristotelian and Epicurean, to which it is related as something of a mid-point between two extremes. Like that of Aristotle the Stoic world is a finite continuum, without any empty space within itself. Like Aristotle again, the Stoics regarded the world as a teleologically ordered system which derives its design and activity from a divine and intelligent

first principle. In the Epicurean world, by contrast, atoms and void constitute a discrete universe of infinite size from which intelligent direction and divine purpose are emphatically excluded. Thus far Stoic cosmology inclines towards the Aristotelian extreme. Stoic philosophers, however, were as emphatic as Epicurus in requiring that causal interactions can take place only between bodies, that there are no incorporeal substances, and that the world is fully constituted by matter in motion. Yet in spite of its position intermediate between Aristotle and Epicurus, Stoic cosmology is completely distinctive in its biological orientation.[12] Their divine and intelligent first principle stands to the world's matter as its formative, energizing power, in a relation the Stoics described as that of soul and body. More on this formulation shortly. The Stoic divinity, as the soul of the world, pervades all matter, with the result that every state of affairs can be ultimately analysed as an activity in the life of the intelligent first principle. Aristotle had already made powerful use of the notion of ends and essences which are internal to living beings, directing their life from within. But he had insisted on keeping his prime mover quite separate from the physical world. In Stoicism the divine active principle functions within the world as the indwelling cause of *all* determinate beings.

Stoic cosmology, then, is neither a lifeless, purposeless, purely mechanistic system, like that of Epicurus, nor does it involve the remote control of an Aristotelian prime mover. It can well be described as a cosmo-biology, a system in which the basic model for understanding all natural processes is drawn from the vital functions of living beings. The heat or energy which accounts for their life is assumed to be only one manifestation of a cosmic heat or energy, endowed with intelligence and supreme organizing power. There were Platonic precedents for this cosmo-biology, and we shall have further occasion to refer to Plato's *Timaeus*. Vital heat too is a concept scarcely original to Stoicism.[13] But it was their innovation, I surmise, with some help from their interpretation of Heraclitus, to turn vital heat or fire into a principle which is closer to elementary thermodynamics than to anything resembling a fire that burns.[14] We shall look in vain, to be sure, for any precise expression of force and energy in Stoicism. Yet the Stoics were adumbrating a notion which can be instructively compared with Francis Bacon's statement in the *Novum Organum* that 'the very essence of heat, or the substantial self of heat, is motion and nothing else'.[15] This seems to be at least part of what they were striving to express, even though their expression represents heat as an utterly tenuous and mobile body - fire or *pneuma*.

How far it is proper to align Stoic dynamics with modern physical theory, as Sambursky (1959) has courageously proposed, I must leave to historians of science. The point I wish to bring out here is that the measure of any such anticipations must pay due account to the biological inspiration of the Stoics' recourse to heat as a unifying active principle.

Granted the propriety of treating the whole world, however broadly, as a living organism, the Stoics were required to make decisions on the extent and nature of its life-history. Changes to the earth's surface, recession of seas, and mortality of land animal species appear to have been some of the empirical phenomena which persuaded them that the present world can be of only limited duration.[16] Or, in more formal terms, they inferred the perishability of the present world *as a whole* from its having had a temporal origin and from the observed perishability of its parts.[17] Such a conclusion is likely to have reinforced, if it did not precede, the conception of the world as a living being, with a temporal history. Thus the Stoics had to face questions about the world's growth and decay, its origins and its end.

These were matters that had engaged Greek thinkers from the very outset of the enquiry into nature. From two of the pioneers, Heraclitus and Empedocles, the Stoics could draw support for their view that the world we inhabit is an evolving and finite structure, a state of affairs whose beginning and development and end are explicable by the activity of everlasting elementary powers.[18] An evolving world is the standard conception in pre-Socratic cosmology, and in no case does it involve creation out of or dissolution into nothing. The refusal to entertain either of these horrors, and the conception of the world as evolving within temporal limits, were principal factors in promoting the earliest Greek support for cyclical recurrence. For reasons that it would distract us to pursue here, an evolving world found no favour with Plato or Aristotle. Yet it would be grossly mistaken to regard Stoic cosmology as a simple-minded return to early Greek models, untroubled by reflection on Academic or Peripatetic alternatives.[19] While Chrysippus could not accept the view of the *Timaeus* that the present world-order will continue for ever, he was quite ready to appropriate wholesale passages from that book which explained regular cosmic changes in terms of biological growth and decay.[20] Plato had stressed the self-sufficiency of the world, saying that 'it was designed to supply its own nourishment from its own decay, and to be both recipient and agent of everything'.[21] Chrysippus took this over, remarking that 'the world-order alone is said to be self-sufficient, because it alone contains everything it needs; and it gets its nourishment and growth from itself by the interchange of its different parts into one another'.[22] The creative fire or Stoic deity, moreover, plays the organizing role of the Platonic demiurge. Yet while Plato represents the demiurge as a quasi-mythical creator, who manufactures the world-soul on the model of transcendent Forms, the Stoic deity creates the world by means of his own 'seminal principles' (*spermatikoi logoi*), shaping matter by being permanently blended with it.[23]

If the Stoics interpreted the *Timaeus* in the way that Aristotle did, they would have found Plato a supporter of a literal creation of the world.[24] The everlasting existence of the present world-order was a new

and controversial thesis in Zeno's youth. Aristotle was its champion, and he claimed no predecessor. In his view, all thinkers, including Plato, 'agree that the world has had a beginning'. It was one of Aristotle's greater concerns, and greatest triumphs as he saw it, to have conclusively refuted creationism. In *On the heavens* 1.10, Aristotle identifies five theses:

1. The world had a beginning but will go on for ever.
2. The world had no beginning but will perish (implicit in 280a29).
3. The world had a beginning and will perish.
4. The world is alternately combined and dissolved.
5. The world had no beginning and will have no end.

Aristotle firmly rejects the first three theses. What interests us here is his assessment of the fourth, 'alternate combination and dissolution'. 'This view', he says, 'is no different from making the world everlasting, merely changing its shape'. He likens the thesis to the cycle of growth and reproduction, whereby the evolution, child-man-new child, may be treated as a destruction of the anterior, from one temporal perspective, or from a different one, the existence of the posterior.[25] His inclination to reduce the 'alternation' thesis to his own position emerges still more clearly as he continues: 'If then the body as a whole, being continuous, is disposed and ordered now in this way and now in that, and the structure of the whole is the world, then it will not be the world that comes into being and perishes, but its dispositions only'.[26] What he excludes as absolutely impossible is a once only generation and destruction of the world as a whole; any creationist, he insists, must postulate a 'turning-back' to a pre-cosmic state, from which creation would begin and which, he implies, must follow the world's destruction.[27]

Aristotle attributes the thesis of everlasting alternation to Heraclitus and Empedocles.[28] At this point of *On the heavens* he is not interested in refuting them at length; their position, as he presents it, unlike that of Plato, is at least compatible with the logical requirements of his own 'everlasting' thesis. We should also remind ourselves that Aristotle's brilliant arguments against a beginning or an end of cosmic motion, as developed in the later *Physics*, could be accepted fully by any cosmologist who was prepared to argue, as the Stoics did, that our present world-order is not the world as a whole, but merely the *diakosmesis*, a finitely lasting phase of the *kosmos* simpliciter, whose existence continues uninterruptedly.[29] There is no beginning or end of cosmic motion in Stoic physics, no alternating periods of motion and rest, to which Aristotle objected in Empedocles.

But here I anticipate somewhat. For our understanding of the cosmological options which were open to the Stoics, Aristotle's *On the heavens* is important because he has not blocked an alternative to his 'everlasting' thesis, an alternative moreover of a kind which could not

fail to attract thinkers who were as committed as he to cosmic order and regular periodicities but unable to accept his view of the everlastingness of the present world. The early Stoics fully endorsed all the conditions which the 'alternating' thesis, according to Aristotle, would have to meet. First, no generation or destruction of the world *as a whole*: this condition is satisfied by the distinction just mentioned between everlasting *kosmos* and intermittent *diakosmesis*, though there are problems about how this distinction can be made intelligible in terms of time.[30] Secondly, the Stoic world *is* the whole continuum of body. Third, and most significantly for our enquiry into everlasting recurrence, the Stoics fully embraced the stipulation that the order which results from each new cosmogony is always essentially the same, an instance of 'turning back' to how things were before.[31] Eusebius tells us that the Stoics wanted 'conflagration' to be understood not as 'destruction' simpliciter, but as a form of 'natural change'.[32]

It is impossible, from the state of our evidence, to reconstruct an order of priorities in the Stoics' cosmological reasonings. What is more, it may be a mistake to suppose that there was such an order. Their defences of the system were regularly appeals to its coherence; and the best test of their success is to see how well a given doctrine, such as the conflagration, a single explanans, fits a variety of explananda. We have identified only some of these thus far; and now, before we leave Plato and Aristotle behind, further explananda that they bequeathed demand brief discussion.

First, we should separate the conflagration hypothesis itself from the more general question of cyclical recurrence. That events *within* the world, most conspicuously the solar year and seasonal movements, are such a phenomenon, was a datum of supreme importance to Plato and Aristotle.[33] In Plato's later writings we also find several references to longer-term repeated catastrophes which destroy much of mankind by fire or deluge. In *Timaeus* 22c Plato rationalises the Phaethon myth as an expression of the truth that celestial movements shift course, over long intervals, causing things on earth to be destroyed by much fire. In a different context of the *Timaeus*, Plato speaks of 'the perfect year', whose completion is signified by the sun, moon and five planets returning to the same relative position, as measured by what Plato calls 'the orbit of the Same'.[34] Plato plainly did not connect the completion of this 'great year' with a cosmic conflagration; for the terrestrial burning he previously mentioned is linked with a 'shift' in the celestial movements. But within Zeno's lifetime, that connexion appears to have been made by the Babylonian Berosus whose account of astrology strongly stimulated Greek interest in that subject. According to Seneca, Berosus said: 'earthly things will burn when all the planets which now move in different orbits come together in the sign of Cancer, and are so distributed that a straight line can pass through all their spheres'.[35] Stoics, who were probably influenced by Berosus' doctrine, must have

concluded that it presupposed a conflagration for every occurrence of the same planetary conjunctions. We are in no position to understand the reasons for connecting the conflagration with a specific celestial configuration. What matters, for our attempt to do justice to Stoic speculations, is the recognition that the concepts they presuppose—very long-term cyclical changes drastically affecting the earth, and their causal connexion with theoretically computable celestial periodicities—seemed utterly plausible to many contemporary philosophers and astronomers.

Secondly, it is essential to take note of Aristotle's intense support for cyclical regularity, provided he can limit its scope within the confines of one everlasting world. The significance of 'man begets man' for his metaphysics and biology is too familiar to need comment. It would hardly be an exaggeration, however, to say that cyclical movements, from the sun's diurnal rotation, through the transformations of the elements and animal reproduction, and extending to meteorological phenomena, is his prime evidence of a rationally based and fixed cosmic order.[36] Now this, to be sure, does nothing to sanction the Stoic conception of everlastingly repeated worlds, though whoever wrote the pseudo-Aristotelian *Problems*, question concerning 'before' and 'after' was quite prepared to countenance the cyclical recurrence of perishable beings.[37] Yet the *Meteorology* reveals Aristotle's own awareness that cases can be made for supposing the whole world to be in process of change.[38] Anyone wanting to retain a broadly Aristotelian conception of cosmic order, but who found the evidence in favour of an evolutionary world compelling, could be tempted to extend cyclical regularity to the present world as a whole, rather than to just most of its contents.

In order not to threaten the everlasting stability of the world, Aristotle was forced to maintain that terrestrial changes do not affect the super-lunary domain. His insistence that the earth is too small for its changes to affect the *whole* world is an observation the Stoics would have done well to heed.[39] But Aristotle was inviting challenge when he allowed his stable world to accommodate 'a great winter', with accompanying deluge, to occur at determinate intervals, and when he conceded that there must be 'some change of the whole', though one which stops short of generation and destruction, 'since the universe persists'[40]. By the time he wrote the *Meteorology* he had rejected the view, later accepted by the Stoics, that moist exhalations from the earth nourish the heavens.[41] It is possible, however, that they found Aristotle supporting this doctrine in his early work *On philosophy*.[42] In Stoicism the world-conflagration is physically explained as a consequence of evaporation becoming complete under the prevailing influence of celestial heat. Aristotle had to erect a firm barrier between celestial and terrestrial physics in order to protect his system against such dangers.

As an intellectual construction, Aristotle's everlasting and non-evolving world is ingeniously defended. Yet even within the perspectives available to him, he had to ignore a good many phenomena uncomfortable to his theory and to postulate an ad hoc discontinuity between the heavens and the sublunar region. This latter step was one the Stoics were not disposed to take. Their strict view of causation within a continuum made it impossible to suppose that the world as a whole can be unaffected by any changes, however small and apparently localised: 'a drop of wine will blend with the whole ocean', as Chrysippus maintained, 'and even with the whole world', against Aristotle's claim that the larger volume cannot be affected by the qualities of the smaller.[43] With hindsight the general characteristics of Stoics cosmology - condensation of matter, followed by world-formation, and expansive combustion - suggest a more imaginative foreshadowing of modern scientific intuitions. But for our understanding of the dialectical context that is not to the point. The Stoics were as committed as Plato and Aristotle to a teleologically ordered world, whose rationality and systematic structure is the best possible. Their immediate predecessors had totally rejected the possibility that such a world could cease to exist. So, as Mansfeld (1979) has shown, we can expect the Stoics to have defences against the charge that the eventual destruction of the present world is totally incompatible with the divine providence of the beneficent divinity who created it. Those expectations will not be disappointed.

The rationality and providence of the conflagration and everlasting recurrence

If we consider the conflagration as a purely physical process, the basic data can be briefly summarised. The world as a whole is an everlasting alternation between a state of extreme condensation (A) and a state of extreme rarefaction (B). Intermediate between A and B is the occurrence of the present world and its innumerable predecessors and successors. The alternation is a result of the constant conjunction of everlasting fire and everlasting matter. State A arises when matter is transformed by fire into the dense elements, earth and water, as a result of which only a residue of fire survives.[44] But this residue is sufficient to be fueled by its products, and by transforming some matter into air, a world of four elements arises. To counterbalance the previous process of condensation, a reciprocal phase of rarefaction develops as fire gradually converts all other parts of the world into combustible material. This gives rise to state B, the conflagration.

What I have offered here is an artificially simple construction, deliberately omitting biological and theological aspects, in order to isolate the essence of the Stoics' purely physical intuitions. With its focus on rigorously balanced transformations it suggests something analogous to the conservation of energy, a comparison aptly made by

Wiggins in reference to Heraclitus, whom the Stoics took as their dominant mentor in physics.[45] Looked at in this way, the conflagration is an essential component of the Stoics' conception of material transformations. More specifically, the Stoics argued that there must come a time when celestial fire, which feeds off terrestrial moisture, will dry up and consume the earth.[46] In a brief fragment of Zeno, recovered by Mansfeld, we find the following argument used to justify the conflagration. 'Everything which burns and has something to burn will burn it completely; now the sun is a fire, and will it not burn what it has'?[47] In another text we can read of the sun converting the other heavenly bodies into itself.[48] This process leads to a vast expansion of the world, with gravitational attractions, as we should call them, being relaxed, and void space outside the world coming to be occupied.[49] What seems to be envisaged here is a vast diffusion of what might broadly be called pure energy. This may be reflected in Chrysippus' suggestion that the state of things at the conflagration is incandescent, a change into light.[50]

The physics I have just sketched seems the obvious starting-point for reflection on the conflagration since that state of affairs is plainly regarded as a physical process. Stoic physics, however, just because it lacks any precisely established concepts of dynamics or quantifiable measures of change, is a theory whose explanatory power is partly metaphorical; it can be compared to a translation system whereby physical processes are converted into terms which are wider in their significance than the physical domain that they primarily name. 'Tension' is both a pneumatic state of matter, and the moral and mental state of a person.[51] The conflagration is a physical process, but it is also a phase in the life of god. One of these references is not privileged over the other. We began by noting that everlasting recurrence is over-determined in Stoic thought. It is time that we fleshed it out with biology and theology. These are inextricably linked with the physics of combustion etc.

A further qualification is needed. For ease of exposition I have spoken, as Stoics regularly did, as if their god were straightforwardly identical with fire. This is an over-simple statement of their position. First of all, they distinguished between the fire of ordinary experience and, what they called, 'designing fire'.[52] This latter, the life-sustaining principle, is the fire which combines with air in the *pneuma* that holds the world together, and which forms the substance of the heavenly bodies. It is 'designing fire' which is predicated of god. Secondly, this sentence is to be construed as a significant predication, and not a statement that god and designing fire are identical concepts.[53] Moreover, the Stoics' separation of the concepts god and fire is stronger than would be implied by our non-tautologous statement, 'energy is heat'. Most basically, god is the active principle of the world and conceptually distinct, as such, from the passive principle, matter. God is

spoken of as designing fire because designing fire is the necessary consequence of god's constant conjunction with matter. We could say that fire is the manifestation or form of god's activity in matter. But, from a metaphysical viewpoint, god as the active principle is prior to fire. This is of the utmost significance for our enquiry. It implies that questions about the conflagration are ultimately questions about god's craftsmanlike activity and his design for the world. The inevitability of the conflagration and everlasting recurrence, though explicable in the physical terms we have considered, will finally depend upon the nature of god. We are to suppose that god's everlasting activity in totally formless matter is the most basic fact about the world. The conflagration is a consequence of god's design taking the law-like form of a physical process; it is not an antecedent which sets constraints in advance on that design.[54]

If this approach is correct, we should expect to find the conflagration and everlasting recurrence strongly attached to the life and providence of god. I began this paper by quoting Chrysippus' book *On providence*. In the same work he discussed the conflagration in terms of the growth of the world-soul, whose commanding-faculty is located in the aetherial fires of the heavenly bodies.[55]

'Since death is the separation of soul from body, and the soul of the world is not separated but grows continuously until it has completely used up its matter on itself, the world must not be said to die'.[56]

This passage refers to the same events as Zeno's argument, mentioned above, concerning the sun's eventual consumption of everything. But whereas Zeno's physicalist account of the sun's expansion affords no comfort to those who might be troubled by the destruction of the present world, Chrysippus' biological account of god's growth is explicitly intended to explain why the conflagration is not a destruction of the *kosmos*. God, unlike other living beings, does not suffer separation of soul from body. Rather, his soul grows by cannibalising its own body, and so the whole *kosmos* becomes divine soul. This absorption of body counts as a reason for the imperishability of the *kosmos*.

Does *kosmos* here mean 'world' in the sense of that which we now inhabit? Plainly not. Our present world is removed by god's absorption of all differentiated matter. What Chrysippus is anxious to counter is the objection that the conflagration, the growth of the divine soul, involves the unqualified destruction of the world.

Staying with Chrysippus' book *On providence*, we may now consider the state of the world following the conflagration, i.e., its immediately pre-present world condition.

'When the world is fiery through and through, it is directly both its own soul and commanding-faculty. But when, having changed into moisture and the soul which remains therein, it has changed in a way into body and soul, so as to be compounded out of these, it has got a different principle'.[57]

Here again the concepts of soul and body, though avowedly metaphors, are used to analyse cosmological phases. During the conflagration, the entire world is divine soul; we should recall Chrysippus' account of the conflagration as 'light'. The cosmological stage which succeeds this, as the conflagration wanes, is a bipartition of the world into two principles, soul and moisture, which form, so to speak, a composite world consisting now of body as well as soul. Notice that it is the divine fire itself which is said to change into moisture and the 'residual soul'.[58] Chrysippus is mixing modes of description here, physical processes and biological functions. But an underlying unity is implicit, if we remember that the ultimate subject of discussion is divine self-transformations. Moisture no less than fire is a manifestation of god's conjunction with matter. For the purpose of his own life, or the design of the world, god has transformed himself into a composite of body and soul, where the later is represented as a 'seed' or 'residue of fire', capable of putting the world-body to its instrumental uses.

In the light, or should one say vivid imagination, of these two texts, I turn to a third which is particularly interesting:

'Chrysippus asserts that Zeus and the world are like a man, and providence is like the soul; so that when the conflagration comes, Zeus, being the only imperishable one among the gods, withdraws into providence, whereupon both, having come together, continue to occupy the single substance of aether'.[59]

Plutarch, the source of these lines, quotes them with the aim of discomforting the Stoics. It was a school doctrine that two peculiarly qualified individuals (*idios poia*) cannot occupy the same substance.[60] The statement that Zeus and providence *both* occupy aether at the conflagration is interpreted as a flagrant contradiction of the doctrine, one qualified individual only to one substance. But Chrysippus' analogies actually confirm it. If providence is like the soul, and god is like a man (a composite of body and soul) during the present world, then god's withdrawal into providence describes god's identity when he and the world are soul alone. The coming together of Zeus and providence is not the coincidence of two distinct individuals, but a description of god's unitary existence as soul when the present world-body comes to an end.

What this passage adds to the two preceding Chrysippean texts on the divine soul and body of the world is the equations: world at the conflagration =god as pure soul =providence. The conflagration brings the present world to an end. Yet we now seem to have the essence of a Stoic answer to criticisms concerning the compatibility of divine providence and our world's ending. Paradoxically, as it may appear, the conflagration completely instantiates god's providence. Later Stoics reflected on this point. Seneca asks:

'What kind of life will a wise man have if he is abandoned by his friends . . . or cast out onto a desert shore? It will be like the life of Jupiter, at the time when the world is dissolved

and the gods have been blended together into one, when nature comes to a stop for a while; he reposes in himself given over to his thoughts'.[61]

Epictetus adds the further detail: Zeus contemplates the nature of his government and is occupied with thoughts appropriate to himself.[62]

Our world has come to an end. In due course it will recur in exactly the same form. Between these two worlds Zeus is firing away with providential thoughts. These thoughts, on the evidence of Stoic and Greek usage of *pronoia*, combine foreknowledge and advance planning. God knows all that will happen, and he plans out all that will happen. Because he is also the universal cause, efficiently affecting matter, he executes what he foreknows and plans. His divine providence is supremely beneficial to the world, and to rational beings in particular. Its three principle objectives, according to the Stoic spokesman in Cicero's *De natura deorum* 2.58, are: the world's survival, its absolute self-sufficiency, and its consummate beauty. Once again the legacy of Plato's *Timaeus* is conspicuous.[63] In that Ciceronian context, the world's survival refers to the present state of the cosmos. No problem is apparently presented by the future conflagration (cf. *ND* 2.118). Nor does any Stoic text suggest that this is other than an event of the remote future.[64] The obvious interpretation of the evidence is surely this: the conflagration is providential since, *sub specie aeternitatis*, it preserves the present world by constantly reconstituting it.

But why destroy the present world if its preservation is the object of divine providence?

My own answer is that this question misfires by importing connotations of 'destruction' which the Stoics did not admit. But, before developing that point, we should notice a radically different answer that has been proposed. In his elegant and pioneering study of the problem, Mansfeld suggests that Zeno conceived the conflagration itself to be the best possible state of affairs.[65] This is the condition of the world when god, as soul and providence, achieves his maximum growth and becomes coextensive with everything. Consequently, Mansfeld argues, the Stoic deity has excellent reason to destroy the present world and replace it with the conflagration. In this way Zeno had a skilful rejoinder to Academic and Peripatetic objections that a creative deity would never destroy its own handiwork.[66] Zeno's problem, it now transpires, was *not* to explain the destruction of the present world, but extraordinarily, to account for its generation, which proves to be a return to an inferior state. Here, Mansfeld argues, Zeno was saved by his non-transcendental theology, his treatment of god as a physical being whose fiery nature is subject to the laws of physics. To quote Mansfeld (p. 161): 'there is, accordingly, a limit to the duration of matter in its best possible state, just as there is a limit to the duration of the ordered universe . . . ' This cyclical alternation, moreover, answers challenges attributable to Aristotle (see n. 66 above) concerning the

motives for creating a new world after this one's destruction: 'no change, for better or for worse, of god's nature is involved, if the recreated universe is, both as to its structure and as to its history, the exact replica of its predecessor' (p. 162).

Mansfeld's last point in my summary is cogent. Everlasting and uniform recurrence of the world, as we noticed in studying Aristotle *On the heavens*, could be construed as a variation on Aristotle rather than a gross departure from him. I wholly agree with Mansfeld's proposal to set Stoic cosmology within a context that exhibits Zeno and his successors responding to the arguments of Plato and Aristotle. But his general reconstruction of Zeno's position seems to land the Stoics with a paradox greater than any of their own making. To be sure, the conflagration is represented in our main sources as a wholly positive event. I can also agree that the conflagration is 'the best possible state of affairs' *for the time when it occurs*. But if the recreation of the present world is 'a return to an inferior state', that implies it would be better if god stayed put and refrained from further cosmogony. Such inactivity, however, would make nonsense of god's essential nature as a provident and creative agent. Once having started, the conflagration appears to be directed towards forming the best possible world.[67] Viewed retrospectively, it is true, the conflagration is sometimes said to clean out all evil.[68] Such an idea provides the Stoic deity with a moral reason for not continuing the present world. But it is not an idea which makes the conflagration absolutely or *per se* superior to the created world. God is everlastingly present in every state of affairs, and it would be quite unStoic to measure the goodness of anything by its size. Hence the greater extension of god during the conflagration can hardly be a measure of its superiority to the created world. As to evil, the Stoics insisted that it is ineliminable from and necessary to the created world, and compatible with divine providence.[69] Its absence from the conflagration does not show that the created world is *thereby* inferior. Probably the early Stoics supposed that whatever state of affairs obtains at any given moment is the best state as viewed from a divine perspective.[70]

To sum up, the conflagration explains why the present world, as observation and physical theory suggest, will not endure for ever. But it is not, for that reason, an event to be feared. Given the physical constitution of things, the conflagration is the necessary counter-phase to the condensed state which originally produced the present world. These physical processes, moreover, are not laws of an undesigning, uncaring, or lifeless nature. On the contrary, they are quite literally acts of god, who works with a rational and beneficent plan for the good of the whole. The world at present is the object of that plan. But any such world can be of only finite duration. Therefore, to ensure the continuity of cosmic goodness, the present world is everlastingly recreated.

This conclusion, I suggest, is reinforced by the following text of Arius Didymus:[71]

'Universal reason having advanced thus far, or universal nature having grown and increased, it finally dries up everything and takes it up into itself, and comes to be in the whole substance. It returns to the first spoken reason and to that resurrection which creates the greatest year, in which the reconstitution from itself alone into itself recurs.[72] Having returned because of the order from which it began to create the world in just such a way, it manufactures the same way of life according to reason, since such periods occur everlastingly without ceasing'.

What is described here is the causal nexus of a completely closed system. But instead of referring explicitly to such causation, the text places all its explanatory weight on universal rationality. We know that the causal nexus and universal rationality coincide in god. If the last event of the present world is causally connected with the conflagration, and the conflagration is a recurrence of exactly the state preceding the present world, the Stoics can establish cyclical recurrence from their principle of invariant causal connexions.[73] But it accords with the over-determinism of their cosmology that they should also represent it as an outcome of divine rationality. Such an explanation invites us to consider the conflagration and everlasting recurrence as in no sense automatic events. They are causally necessary, but the causes which necessitate them are enactments of reason. We need not suppose that god plans out the world afresh, like a human agent reviewing possible options. The cyclical alternations are everlasting. Yet every one of them is explicable as how it was to be if reason controls the world in the best possible way.

The time of everlasting recurrence

But what if reason has failed after all to secure everlasting recurrence? That is Barnes' conclusion, as I remarked at the beginning of this paper.[74] What is at stake here is the coherence and intelligibility of maintaining that the occupants and occurrences of any one world are exactly the same as those of every other world, where 'exactly the same' means numerically identical.[75] On this construal, everlasting recurrence requires that there be only one Socrates. Just he, the self-same individual, lives his life without the smallest difference of detail an infinite number of times - the son of Sophroniscus, 470-399 B.C.

Let us call this version of recurrence S1. Our evidence also includes three other interpretations of what it is that recurs. S2: the same peculiarly qualified individual' but with 'external' and 'accidental' differences, such as having or not having a mole on one's face.[76] S3: not what is numerically the same but 'what is no different from', i.e. indistinguishable tokens of the same type.[77] S4: very slightly different occurrences, probably meaning very slightly distinguishable tokens of the same type.[78]

S4 is explicitly said to be revisionary, to avoid embarassment over 'no difference' in S3. Since the Stoics standardly defended the identity of indiscernibles, it is difficult to see how S3 could be advanced as a serious alternative to or improvement on S1.[79] S2 is an interesting alternative: it seeks to retain numerical identity ('the same peculiarly qualified individual') while allowing us to distinguish this world's Socrates from his recurrent self by a feature which is not essential to his being the self-same man. However, as Barnes observes, anyone who defended S2 has apparently given up strict determinism, which leaves no room for even inessential differences between worlds.[80] Probably, S2-4 were all intended as responses to criticism of S1 - the recurrence of numerically the same individual without the smallest difference. I agree with Barnes that we should assume S1 to be the original doctrine, which sets the strongest conditions for the sameness of what recurs. S1 is also the most intriguing thesis.

Barnes' critique runs as follows.[81] The event E in our world K and the parallel event E* in the next world K* are distinct events if and only if the instants at which they occur, t and t*, are distinct. We might suppose that t and t* must be distinct non-identical instants because E* is situated in a world which does not exist before the end of the present world. But the Stoic theory of time excludes the possibility of distinguishing these instants. They regarded time as incorporeal, and this, Barnes holds, gives time no existence independently of the events which characterise it. So two instants will be separable if and only if the events which characterise one instant are distinguished in some way from the events which characterise the other instant. But, on the orthodox account of everlasting recurrence (i.e. S1), there is no difference at all between the events of any two worlds. Therefore there can be no difference between the instants of their occurrence. The infinity of successive worlds turns out to be only one world, unfolding in the same temporal extension. So it is quite impossible for Chrysippus to return to his present shape in another life.

The issue here is graver than Barnes acknowledges. If he is right, the whole of orthodox Stoic cosmology is utterly flawed. The present world itself would never get under way, for its causal conditions presuppose a counterpart world as antecedent and consequent. That the outcome is so grave is further indicated by the presumption that Stoics who gave up the conflagration and everlasting recurrence (n. 5 above) were defenders of an Aristotelian everlasting world.

Before fully facing the issue which Barnes raises, certain features of the Stoic theory of time need clarification. As an 'incorporeal something', time seems to occupy an intermediate status in the Stoics' ontology, lacking the 'body' which confers existence on beings, while having the status of 'something' as distinct from nothing.[82] However, we should not conclude from this that time is not an objective feature of the world. It is regularly defined as the 'dimension (or measure) of the

world's motion', and motions for the Stoics are bodies, or bodily states.[83] Perhaps we can say that time, considered by itself, is an abstraction from moving bodies. But if this is correct, I think it equally follows that what Barnes calls 'events' will turn out to be abstractions, and not items which have ontological priority over time. Thus, in the paradigm case of causal connexion, what we would call an effect or an event, was regarded by the Stoics as an 'incorporeal predicate' - the 'cutting' which results from applying one body, a knife, to flesh, another body.[84]

Incorporeality is not the issue here. Stoic time is coeval with the cosmos, that is to say, 'infinite'.[85] For our particular problem we need to distinguish between what I will call physical time and psychological time. Such a distinction seems to me to make the best sense of the apparently conflicting accounts Chrysippus gave of the past, present and future.

Like Aristotle, he regarded time as infinitely divisible, drawing Aristotle's conclusion that 'now' or 'the present', on a strict physical view, is an instant without duration. The present, treated as an extended time, is specious, since it will be found to consist of the past and the future.[86] But Chrysippus also said, 'only the present belongs. The past and the future subsist but in no way belong'.[87] What is meant here, I suggest, is psychological time. To quote him again: 'no time is exactly present, but it is broadly said to be so'.[88] In this sense, the present can be as long as you like - a day, a year, maybe a whole world.[89] There is no inconsistency between physical and psychological time; they do not betoken confusion or change of mind in Chrysippus' thought. Psychological time is true to our experience; but the measure of motion, the precise formulation of before and after, has no place for an extended present time.

In responding to Barnes, I shall look at his arguments first from the perspective of physical time, and then, to conclude, from that of psychological time.

Barnes holds that the identity of events in successive worlds carries with itself identity of the instants of their occurrence, and that the impossibility of separating the instants entails that Chrysippus dies only once. 'He dies at t, he dies at t^*; but t is the same instant as t^*. He only dies once; he will not survive his unique death'.[90] I do not think Chrysippus need be troubled by this objection. What interests him is the possibility of his living a life in some future, which is identical in every respect to the life he is living at present. He has to show, in other words, that the t at which he is living his present life is not privileged over some future t^* when he will again be living just the same life. Barnes quite rightly observes that this future t^* cannot be distinguished by Chrysippus as different from the t of his present state. But why should this trouble the Stoic? He is committed to the absolute indistinguishability of his lives. As the good logician that he is, he should gladly embrace the absolute indistinguishability of their times.

But does this not imply that Chrysippus lives only once and cannot live again? The answer to this question seems to depend on whether he conceives of time as linear, or circular and closed. Barnes' argument presupposes linear time, whereby any instant is absolutely before or after any other instant. On such a presupposition it follows that if Chrysippus' future life occurs at instants which are the same as the present instants, he cannot be said to have a future life after his present life. But on a circular and closed conception of time, this does not follow. For if you go forward, you will eventually come to a time (future) which is the same as the present time; and if you go backwards, you will eventually come to a time (past) which is the same as the present time. On this conception, no time is absolute (cf. Chrysippus' different statements about the relations of past, present, future), and every time is both before and after itself (cf. 'the present consists of the past and the future'). The time at which Chrysippus is living now is also future to itself, and so he does have a life after the present one. What remains absolute is the ordering line in which the sequence of instants within any world is placed, so that the antecedent events of Chrysippus' past life *will* recur in just the same sequence of instants in which they *have* occurred.

Barnes dismisses circular time in a footnote as 'absurd'.[91] This seems unduly hasty, given the seriousness with which modern philosophers discuss non-standard topologies of time.[92] Thus Prior seems to succeed in showing that the tense logic required by the conception of time I was just discussing can be formulated with complete coherence.[93] It needs such axioms as 'what will be so has been so', 'what has been so will be so', 'what is so has been so', 'what is so will be so'; and there is good reason to think that Chrysippus accepted all of these. Given the Stoic image of time as 'like the unwinding of a rope, bringing about nothing new and uncoiling what was primary', it seems entirely appropriate to attribute a view of circular or closed time to Chrysippus.[94] The language of everlasting recurrence, with its reference to the world's *return*, suggests a non-linear view of time, and its historical plausibility is increased by the testimony of Eudemus, some hundred years older than Chrysippus:

'If one is to believe the Pythagorean thesis that numerically the same things will recur and I will talk to you sitting just so, holding my staff, and everything else will be in the same state, it is reasonable that the time too should be the same. For if the movement is one and the same, and if the before and after of many identical things is one and the same, then so too is their number. Therefore everything is the same, and consequently the time too'.[95]

Chrysippus may be presumed to have argued in similar vein, thus allowing himself the prospect of being alive again in the future. His next life will occur at some future time when he finds himself in the same time interval that he is in at present; and what he looks forward to, let it be stressed, is the *very same* life - not a life merely qualitatively

indistinguishable from the present one, but one which is numerically identical to it. Such a life, let me reiterate, is the only one he can live 'again', on the assumption that it will occur at a future time which is the same as that of his present life. Certainly, as Barnes says, Chrysippus only ever lives 'in the same temporal extension' (meaning, I take it, the same time interval), but I fail to see why, in circular time, this reduces 'the infinite cycle of worlds to a great illusion'. For that 'extension' includes an infinitely repeated set of past instants and an infinitely repeated set of future instants, with Chrysippus' life occurring in *both* of these. Perhaps he was unwise to imply, if he did, that there is more than *one* occurrence of his life. But he could reasonably reply that 'living again' is his way of indicating that the one and only life he ever lives - viz. that which he lives at the present time - is situated in both an infinitely extended past and an infinitely extended future.

If Chrysippus reasoned about time in the way I have been arguing, everlasting recurrence gains a further mark of over-determination. Let me finally suggest what the theory might amount to from the perspective of psychological time.

Marcus Aurelius' *Meditations* abound in fascinating reflections on time. Here are two samples:

'Even if you were to live three thousand years or thirty thousand, nevertheless remember that no one loses another life than this which he is living nor lives any other life than this which he is losing. For the present is equal for all, and so what is passing away is equal; and this shows that what is being lost is merely a moment. No one could lose what is past or what is future. For how could anyone deprive him of what he does not have? Always remember, then, these two things: one, that everything everlastingly is of the same kind and cyclically recurrent, and it makes no difference whether one should see the same things for a hundred years or for two hundred or for an infinite time. Two, that the longest lived and the quickest to die have an equal loss. For it is the present alone of which one is deprived, since this is the only thing that he has, and no one loses what he does not have.'[96]

And now this:

'The properties of the rational soul: it sees itself, articulates itself, makes itself into whatever it wants . . . it achieves its particular goal whenever the end of life arrives . . . it makes a circuit of the whole world, both the void which surrounds it and its shape; it extends itself out into the infinity of time and encompasses the periodic rebirth of the whole, and understands and observes that those after us will see nothing new nor did those before us see anything greater, but in a way the man of forty years, if he has any understanding at all, has seen all the past and all the future because they are of the same kind.'[97]

Marcus leaves it open whether the world alternates between conflagrations and recurrences or renews itself by everlasting mutations of the elements.[98] He probably reckoned both theses to be equally plausible and of similar significance. What preoccupies him continually is the relationship between mutability, changelessness and the notion that in the present we have all that we can have. This is the 'broad' present, which I have called 'psychological'; it stands for the perspective which

establishes the contours of one's moment-by-moment outlook on the world. But it also implies the durationless present, what one is both living and losing. Marcus' insistence on the irrelevance of the length of a human life, and his claim that forty years are long enough to grasp the entire history of the world, might seem to exclude any moral point to everlasting recurrence. I think, on the contrary, that his reflections may indicate its deepest significance for the Stoic way of life.

Everlasting recurrence, we have seen, in its orthodox formulation, offers us not a vestige of difference from the lives we lead now. If it is true, then we are destined always to be just what we are in this present. No point then in any such thought like, if only things were different, or, if only I might have my time over again, or maybe there's a future life when I will be more fortunate. Nehamas has recently suggested that for Nietzsche, the eternal recurrence is best regarded as 'a provocative and serious theory of human personality'.[99] Interpreting the doctrine in Nietzsche conditionally, Nehamas sees it there as 'the hypothesis that if we were to have another life it would have to be, if it were to be *our* life at all, the very same life that we have already had' (p. 345). Nietzsche's conception of the will to power is a far cry, in some respects, from the Stoic providential succession of worlds. Yet there are more than surface similarities between the philosophies. The language of *Zarathustra* has some striking affinities with Marcus Aurelius: 'to redeem those who lived in the past and to recreate all "it was" into "thus I willed it" - that alone I should call redemption . . . willing liberates . . . the will cannot will backwards'; and 'the time is gone when mere accidents could still happen to me; and what could still happen to me now that was not mine already? What returns, what finally comes home to me, is my own self'.[100]

In the view of Nehamas, everlasting recurrence is not a cosmological doctrine in Nietzsche. That may be. Yet I should be surprised if someone so deeply soaked in Classical literature were not given food for his own digestion from these Stoic antecedents. It could be, moreover, that Nietzsche himself detected the wider Stoic resonances of everlasting recurrence such as I have been canvassing. The strength of Stoicism, which is also its weakness, is getting logic, ethics, and physics into the closest possible fit. I have argued that the conflagration and everlasting recurrence exhibit that *akolouthia* no less than more fashionable Stoic doctrines. Physics, logic, and theology determine that Chrysippus will live again. Yet that gives him nothing that he does not have now. Or is that false? His life will be just the same again. But reflect: everlasting recurrence, if true, shows that you did endure, and live again to prove it. The problems of the immediate future require no less resolution and fortitude. But you will manage them, as you did before.[101]

NOTES

[1] Lactantius, *Inst. div.* 7.23 (*SVF* 2.623).

[2] 'Gods who are not subject to destruction' refers to Zeus, the Stoics' everlasting 'active principle' or *logos*, as distinct from the four elements which only exist for the duration of any one temporally finite world.

[3] Nemesius, *Nat. hom.* 309-11 Matthaei (*SVF* 2.625). Most of the remaining evidence is collected in von Arnim, *Stoicorum Veterum Fragmenta* (*SVF*) 2.596-632, but this needs supplementation from Mansfeld (1979, 1983). For bibliographical details see references at the end of the paper.

[4] 'Only matter and god [i.e. the two everlasting principles] survive in the conflagration', Alexander of Aphrodisias, *Mixt.* 226, 16-19 Bruns (*SVF* 2. 1047).

[5] Cf. Philo of Alexandria, *On the indestructibility of the world* 76-7, who records the doubts of Diogenes of Babylon and the recantation of two later Stoics, Boethus of Sidon and Panaetius.

[6] The progress is due to Hahm (1977), 185-99, and above all to Mansfeld (1979), each of whom is more concerned with the conflagration than with everlasting recurrence. I gratefully acknowledge my indebtedness to their studies.

[7] Lapidge (1978), 180-183. The three 'causes' he finds in the sources are 1. god's continuing increase within the universe and eventual consumption of himself; 2. the sun and stars' eventual consumption of all moisture; 3. the recurrence at the onset of conflagration of the planetary configurations which occurred when the universe was first created. Any of these 'causes' - a rather meagre selection from the actual evidence - will seem problematical when taken in isolation. The reader must judge whether they appear less so when treated in the contexts I offer in the main body of this paper.

[8] Sandbach (1975), 78-9.

[9] Barnes (1978). The last part of this paper gives a response to Barnes' critique.

[10] For a survey of philosophical or scientific theories of 'eternal return' from antiquity up to modern times see Capek (1967), and for antiquity itself, Sorabji (1983), 182-90. The conflagration reminds Sambursky (1963), 200f., of nineteenth century ideas of the 'thermic death' of the universe. Bernard Lovell, the pioneer of radio astronomy, has remarked on how 'many of the major scientific problems of cosmology' remain unclarified (1981), 178, observing that 'we cannot say from the present state of theory and observation whether the universe is open or closed. That is, whether the expansion will continue for ever and the universe will eventually cease to exist except in a form of unavailable energy or whether the universe will eventually collapse to another superdense state similar to that from which it evolved', 180. For discussions of circular or closed time see Prior (1967), 63-6, and Newton-Smith (1980), 57-78.

[11] On Nietzsche cf. Nehamas (1980) and Kain (1983).

[12] The history and significance of this are well brought out by Hahm (1977), chapter V.

[13] For the historical background, cf. Hahm (1977), 140ff.

[14] For the Stoics' interpretation of Heraclitus, cf. Long (1975/6).

[15] Intelligatur hoc . . . quod calor, sive *quid ipsum* caloris, sit motus et nihil aliud, *Novum organum* 2.20.

[16] These are included in four arguments opposed by Theophrastus, but not explicitly attributed to Stoics; Philo of Alexandria, *On the indestructibility of the world*, 117-45. Graeser (1975), 187-206, makes a good case for taking Zeno, the Stoa's founder, to be Theophrastus' target, Zeno himself having directly opposed Aristotle's thesis of the eternity of the present world.

[17] Diogenes Laertius 7.141 (*SVF* 2.589), cf. Philo (n. 16 above) 117, 143-4.

[18] Stoic interest in Empedocles as well as Heraclitus is well attested, cf. *SVF* 2. p. 255, 18; *SVF* 2. 673. In later antiquity Heraclitus was regularly credited with a doctrine of *ekpurosis*, the world-conflagration. The tendency has been to regard this as a Stoicizing interpretation, but the correctness of the attribution to Heraclitus has been defended, most recently by Kahn (1979), 134-8.

[19] The necessity of interpreting Stoic cosmology in the light of Platonic and Aristotelian doctrines has been amply demonstrated by Hahm (1977) and Mansfeld (1979).

[20] *Timaeus* 37c-38b, 41a-b.

[21] *Timaeus* 33c.

[22] Plutarch, *On Stoic self-contradictions* 1052C (*SVF* 2.604).

[23] Aetius, 1.7, 33 (*SVF* 2.1027), Origen, *Against Celsus* 4.48 (*SVF* 2.1074).

[24] Aristotle, *On the heavens* 280a30.

[25] *On the heavens* 280a12-15.

[26] *On the heavens* 280a20-23.

[27] *On the heavens* 280a23-27.

[28] *On the heavens* 279b16-17.

[29] Diogenes Laertius 7.137 (*SVF* 2.526), which sanctions the use of the term *kosmos* also for the *diakosmesis*, as is frequently found in Stoic texts. Cf. also Philo of Alexandria, *On the indestructibility of the world* 9 (*SVF* 2.620).

[30] For instance, what kind of cosmic clock or intelligible measure of change exists during the conflagration? Philo of Alexandria, *On the indestructibility of the world* 54, suggests that a 'quibbling Stoic' might take the motion, of which time is the measure or dimension, to include that of 'the world imagined at the conflagration'. The continuity of time during the conflagration is required by its infinity (*SVF* 2.509). Perhaps god's providential thoughts (see above p. 23) may be taken to proceed in such a way that thought B occurs after thought A and before thought C, thus providing a temporal series for the activity of the conflagration. But is the everlasting Stoic god in time?

[31] E.g. *SVF* 2.599, 625. My interpretation of the relation between Aristotle's review of opinions in *On the heavens* and the Stoics' cosmic cycle is close to that given by Hahm (1977), 190-194, who should be consulted on the pre-Aristotelian background. I differ from Hahm, however, in my assessment of the differences between Aristotle and the Stoics, nor would I say that 'the Stoic theory is an exact repetition of the theory Aristotle expressed in *On the Heavens* (1.10.280a11-23)', 193. The Stoics do reject the eternity of the cosmos in the sense of cosmos that Aristotle understands, nor does he actually approve the cosmic cycles he attributes to Heraclitus and Empedocles. The Stoics' evolutionary cosmogony was a radical rejection of Aristotelianism, and it loses none of its revisionary character if they succeeded in turning Aristotle's assessment of the 'alternation' thesis to their own advantage. It seems to me highly likely that the early Stoics knew Aristotle's *On the heavens*; but we do not *know* that they did. The comparison between that text and their cosmology is instructive, even if their theory is not an 'exact repetition' of anything they knew from our Aristotle.

[32] Eusebius, *Pr. ev.* 15.18.2 (*SVF* 2.596).

[33] Cf. Solmsen (1960), 420-39, 'Eternity and Cyclical Regularity'.

[34] *Timaeus* 39d. A similar claim, in association with the occurrence of cataclysms, is attributed to Aristotle in writings lost to us; cf. Hahm (1977), n. 2, 195f. I suspect that at least the astronomy is a misreporting under later Stoic influence.

[35] Seneca, *Nat. quaest.* 3.29.1. Berosus also envisaged a great deluge when the planets converge in the sign of Capricorn. In Stoic cosmogony the subsidence of the conflagration gives rise to a totally watery state (see Hahm 1977, 186), but no planets can have existed at that time. What Seneca describes in *Nat. quaest.* 3.27-8 is the 'fated day' of a deluge that will overwhelm most of the earth; i.e. it occurs within a world-period. Mansfeld (1979), n.52, 146-7, is sceptical of seeing any connexion between Berosus and early Stoic cosmology.

[36] Cf. Solmsen (1960), 387-9.

[37] *Problems* 17.916a18-39. The problem posed is the understanding of 'before' and 'after'. Are the people who existed at Troy absolutely 'before' us? Or do 'perishable beings' live and die repeatedly, like the circular movements of the heavenly bodies? In the latter case, the repetition could not be of what is numerically the same: that would be utterly 'naive'. But it could be of what is the same 'in form' (cf. *Gen. et Corr.* 2.11, 338b13). The author concludes that, on such a model, 'we ourselves' would exist 'before', and that there would be no basis for saying that the people at Troy were before us nor we before them. If this is the correct interpretation of a difficult text, it lends historical credence to the circular time that I attribute to Chrysippus concerning the Stoics' cosmic cycles; but Chrysippus, I shall argue, did envisage numerical sameness for the occupants of any cycle.

[38] *Meteorology* 1.14, especially 352a17.

[39] *Meteorology* 352a26-8.

[40] *Meteorology* 352a28-32, 352b17-18.

[41] *Meteorology* 2.2; for the Stoic doctrine cf. *SVF* 2.652, 663, 690, and Hahm (1977), 189.

[42] Cf. Solmsen (1960), 408 n.58.

[43] Plutarch, *On common conceptions* 1078E (*SVF* 2.480).

[44] Diogenes Laertius, 7.135 (*SVF* 2.580); Plutarch, *On Stoic self-contradictions* 1053B (*SVF* 2.605).

[45] Wiggins (1982), 16-18.

[46] Alexander of Aphrodisias, *In Ar. Meteor.* 61, 34-62, 11 Hayduck (*SVF* 2.594); cf. Mansfeld (1979), 150f., for other evidence.

[47] Alexander Lycopolis ed. Brinkmann (Teubner) XII p. 19, 2f.; cf. Mansfeld (1979), 146ff.

[48] Plutarch, *On common conceptions* 1075D (*SVF* 1.510), attributed to Cleanthes.

[49] *SVF* 2.537, 609-10.

[50] Philo, *On the indestructibility of the world* 90 (*SVF* 2. 611).

[51] For tension (*tonos*) in reference to states of the soul, cf. *SVF* 1.563, 877 etc.

[52] *SVF* 1.120, cf. *SVF* 2.774.

[53] Cf. Sandbach (1975), 73-4.

[54] The absence of this theological dimension from Lapidge's account (n. 7 above) seems responsible for some of his worries.

[55] Diogenes laertius, 7.139 (*SVF* 2.644), cf. *SVF* 2.642.

[56] Plutarch, *On Stoic self-contradictions* 1052C (*SVF* 2.604).

[57] Plutarch, *ibid.* 1053B (*SVF* 2.605).

[58] Cf. Hahm (1977), 60ff.

[59] Plutarch, *On common conceptions* 1077E (*SVF* 2.1064).

[60] Philo of Alexandria, *On the indestructibility of the world* 48-51 (*SVF* 2.397); cf. Sedley (1982).

[61] Seneca, *Ep.* 9.16.

[62] Epictetus, *Discourses* 3.13.4-7.

[63] *Timaeus* 29a (beauty), 33d (self-sufficiency), 33a (survival).

[64] The 'great year' attributed to Diogenes of Babylon was 365 x 18,000 solar years, Aetius 2.32. 4 (*SVF* 3. Diogenes, 28). For the background to such computations, cf. Van der Waerden (1952).

[65] Mansfeld (1979), especially 159-63, and (1981) 304-9. For reasons of space it is impossible for me to set out and comment on his discussions in the detail that they deserve.

[66] I have no difficulty in accepting Mansfeld's hypothesis that Zeno developed his cosmology in partial opposition to Plato *Timaeus* 41ab and Aristotle *On philosophy*, as preserved in Philo of Alexandria, *On the indestructibility of the world* 20-24 (= Aristotle fr. 19a Ross) and 39-43 (= Aristotle fr. 19c Ross). In the last of these texts, Aristotle apparently argued by elimination that god would have no reason to destroy a world he had made. The possible reasons for so doing that are eliminated are 1. to cease from cosmogony, 2. to change his previous purpose, 3. to make a worse world, 4. to make a similar world, 5. to make a better world. On Mansfeld's reconstruction, Zeno will have opted for 4, with defences against Aristotle's objections to it, see (1979), 162-3.

[67] Cf. Aetius 1.7.33 (*SVF* 2.1027), Aristocles, quoted by Eusebius, *Pr. ev.* 15.14.2 (*SVF* 1.98), Dio Chrysostom 36.55 (*SVF* 2.622), where the onset of cosmogony is treated allegorically as 'the happy marriage of Zeus and Hera'.

[68] Apart from Plutarch, *On common conceptions* 1067A (*SVF* 2.606), 'at the conflagration no evil whatever is left behind, but the whole is then prudent and wise', evidence for the conflagration's 'purging' effect is unreliable for early Stoicism; cf. Mansfeld (1983), 220f., who thinks 'that the assumption that the final conflagration is a *katharsis* is Christian'.

[69] The principal evidence is cited by Plutarch, *On common conceptions* 1064E-1068D; for discussion cf. Long (1968) and Mansfeld (1979).

[70] I say 'early Stoics', in order to acknowledge that later members of the school were heretical on the whole issue of the conflagration (cf. n. 5 above), and in some cases attributed it not to god but to fire (a distinction untenable in early Stoicism), making god answerable only for creation, Philo of Alexandria, *On the indestructibility of the world* 8 (*SVF* 2.620), cf. Mansfeld (1981), 307. The evidence which persuades Mansfeld (1979), 177, that for Chrysippus 'the state of affairs during total conflagration is far superior to that of the familiar, ordered universe', has largely been cited in the main body of this paper. A further objection that I have to his interpretation is more general. He finds in Stoicism anticipations of Gnostic views on the imperfection of our world, see (1981), 305-6. To me that seems an anachronistic reading of the main tenor of the evidence on the early Stoics' attitude to this world.

[71] Quoted by Eusebius in *Pr. ev.* 15.19.1-2 (*SVF* 2. 599).

[72] The language is obscure but defensible, I think. Mansfeld (1983), 229f., finds particular difficulty with 'resurrection' (*anastasis*), on the grounds that a 'resurrection' should not be that *to* which nature returns since 'it can only begin *after* the grand unification', and further, that a resurrection, as part of the 'greatest year', can hardly be said to create this as a whole. I question whether the 'greatest year' is supposed to include the conflagration itself. Hence 'resurrection' may refer just to the initial state of affairs which determines the next cosmic cycle. Nor do I find it too difficult to speak of nature returning *to* a resurrection, meaning the restoration of that state of affairs. Mansfeld maintains that *anastasis* is Eusebius' Christian intrusion, which has displaced *anatasis*, 'extension', from Arius' text. If, however, the next Stoic world includes individual persons numerically identical to those in this world, it seems quite credible that Stoics themselves may have called the initial conditions of the next world 'resurrection', thus attracting Christian interpreters in the way that Mansfeld (1983) indicates.

[73] Cf. *SVF* 2.945-51. At *Gen. et corr.* 2.11, 337b33-338a17 Aristotle argues that the unconditional necessity of something's coming-to-be requires its everlasting recurrence. For the Stoics, though not of course for Aristotle, the coming-to-be of any particular substance is unconditionally necessary. For reasons of space, I cannot pursue this possible line of Aristotelian influence on Stoicism.

[74] Barnes (1978), 12.

[75] For 'numerical identity' as the meaning of 'exactly the same', cf. Alexander of Aphrodisias, *In Ar. An. pr.* 180, 33-6 Wallies (*SVF* 2.624), Clement of Alexandria, *Strom.* 5.1.9, 4, Philoponus, *In Ar. De gen. et corr.* 314, 9-21 Vitelli, and Simplicius, *In Ar. Phys.* 886, 12-16 Diels (*SVF* 2.627), where the Stoics are represented as asking 'whether the I now and the I at another time are numerically one, because they are the same in substance, or whether I am fragmented by being assigned to a succession of cosmogonies'.

[76] Alexander of Aphrodisias, *In Ar. An. pr.* 181, 25-31 Wallies (*SVF* 2.624). Contrast Origen's version of S1 in *Against Celsus* 4.12 (*SVF* 2.628): 'identities which are both without difference in their peculiarly qualified individuals *and* in their actual accidents'. It should be noted that Alexander states S2 as if it were simply an amplication of what he has previously said about numerical identity (n. 75 above). But there can be no serious doubt that S2 is a non-standard version; contrast also Nemesius (p. 17 above), 'without difference down to the smallest details'.

[77] Origen, *Against Celsus* 4.68 (*SVF* 2.626).

[78] Origen, *Against Celsus* 5.20 (*SVF* 2.626). Barnes (1978), 10, assimilates this view to S2; but I take S4 to deny the numerical identity which S2 requires.

[79] Cf. Barnes (1978), 11.

[80] Barnes (1978), 10. See n. 94 below.

[81] Barnes (1978), 11-12.

[82] See the very useful summary by Sorabji (1983), 21-7. I differ from him, however, over the interpretation of the evidence concerning Chrysippus' position.

[83] Definition of time, Stobaeus 1.106,5 Wachsmuth (*SVF* 2.509); motions as bodies, Galen, *On incorporeal qualities* 6 (*SVF* 2.385).

[84] Sextus Empiricus, *Against the professors* 9.211 (*SVF* 2.341). What acts or is acted upon must be a body, in Stoicism, and corporeality is the foundation of anything that

'exists'. The 'subsistence' to which time and place are thereby confined is generally found troubling; yet 'incorporeal' seems the wholly appropriate status for things which are 'body-less', i.e. what we get when we consider time and place in abstraction from bodies. The legitimacy or objective justification for such abstractions seems to derive from the nature of bodies themselves: they are the kind of beings whose spatio-temporal characteristics - the events that describe their states - can be considered *as if* they existed independently.

[85] I.e. the infinity of time (for which cf. Stobaeus, n. 83 above) is coextensive with the everlastingness of the cosmos in the sense of cosmos which embraces the coming-to-be and passing away of particular worlds, cf. n. 29 above.

[86] Plutarch, *On common conceptions* 1081C, Stobaeus, n. 83 above.

[87] Plutarch, *On common conceptions* 1081F, Stobaeus, n. 83 above.

[88] Stobaeus *loc. cit.* Sorabji (1983), 22, explains the discrepancy between Chrysippus' statements about the present by supposing that he first declared only the present to 'exist' (I translate 'belong'), and then subsequently decided that it is partless, and thus not a part of time at all. I prefer to think he distinguished two senses of presentness, which Plutarch tried to exploit as contradictory.

[89] Cf. the views attributed to the Stoic Apollodorus, Stobaeus 1.105, 11-16 Wachsmuth, translated in Sorabji (1983), 21.

[90] Barnes (1978), 12.

[91] Barnes (1978), n. 64, 19. Sorabji (1983), 185, is no more sympathetic, finding Gödel's thesis of cyclical time incoherent.

[92] Cf. Prior and Newton-Smith (n. 10 above) and the useful survey in Sorabji (1980), 115-19.

[93] Prior (1967). 63-6. Newton-Smith (1980), 65, seeks to improve on Prior by the use of more complex tense operators.

[94] Cicero, *De div.* 1.127 (*SVF* 2.944). Cf. also Rist (1969), 282, 'the beginnings and ends of the cycles themselves have nothing which could 'place' them in terms of sequence . . . Strictly speaking, there is no 'before' the cycle began and no 'after' the cycle ends;' cf. n. 37 above. White (1983) seems to think that Chrysippus did without a conception of time as a 'linear sequence of events', though he does not discuss circular time. On the alternative accounts of recurrence, S2-S4 (see above, p. 26), time should be linear, since they exclude the recurrence of the same individual without any difference. Thus Socrates without a mole cannot occur in the same temporal extension as Socrates with this feature.

[95] Quoted by Simplicius, *In Ar. Phys.* 732,26-733,1 Diels. Sorabji (1983), 183-4, is probably right to take Eudemus to be drawing his own inference that the time will be the same, and using that inference as a *reductio ad absurdum* of the Pythagorean theory. My suggestion is that the inference suited Chrysippus very well. Sorabji says that there is no recurrence if the time is the same. That seems to me to apply to linear but not to circular time.

[96] *Meditations*, 2.14.

[97] *Meditations* 11.1-2.

[98] Cf. Mansfeld (1983), 220 with n. 9, 231 for further references to the *Meditations*.

[99] Nehamas (1980), 356.

[100] Quoted by Nehamas (1980), 348, 338, from Walter Kaufmann, *The Viking Portable Nietzsche* (New York, 1968).

[101] Versions of this paper were read at meetings in London and Austin, Texas, before I delivered it at the Spindel Conference at Memphis State University, Tennessee. I am grateful for helpful discussion on these occasions, and especially to Myles Burnyeat, Alan Code, David Sedley and Richard Sorabji. Some details, which I have had to skip over here, will be covered more fully in A.A. Long and D.N. Sedley, *The Hellenistic Philosophers*, Cambridge University Press, forthcoming.

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